

Amendment under 37 CFR 1.116
Reply to Office Action dated February 25, 2005
March 24, 2005

AMENDMENTS TO THE CLAIMS

Please substitute the following claims for the pending claims with the same numbers respectively:

Claim 1 (Previously presented): A semiconductor device comprising:

a semiconductor element;

a support member having a recess including a sealing member therein for housing the semiconductor element, the support member including lead electrodes and a support part holding the lead electrodes so that a surface of each of the lead electrodes is exposed in a bottom of the recess; and

wherein the support member has a first surface disposed outside of the recess, a second surface disposed outside of and being offset from the first surface and a third surface disposed between the first surface and the second surface, the third surface having a portion including a notch.

Claim 2 (Previously presented): A semiconductor device comprising:

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a semiconductor element;

a support member having a recess for housing the semiconductor element, the support member including lead electrodes and a support part holding the lead electrodes so that a surface of each of the lead electrodes is exposed in a bottom of the recess;

wherein the support member has at least a first surface disposed outside of the recess having a sealing member therein and a second surface disposed outside of and offset from the first surface, the second surface having at least one of a protrusion and a further recess disposed thereon.

Claim 3 (Original): The semiconductor device according to claim 2, wherein the further recess is a depression and the protrusion forms an outer wall of the depression.

Claim 4 (Original): A semiconductor device comprising:

a semiconductor element;

a support member having a recess for housing the semiconductor element, the support member including lead electrodes and a support part holding the lead electrodes so

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that a surface of each of the lead electrodes is exposed in a bottom of the recess;

wherein the support member has at least a first surface disposed adjacent to the recess and a second surface disposed adjacent to and offset from the first surface of the support member; and

wherein the semiconductor element comprises a semiconductor having a laminated structure with at least a N-type contact layer of a nitride semiconductor having an N-side electrode and a P-type contact layer of the nitride semiconductor having a P-side electrode, the N-type contact layer comprises a first region including a semiconductor laminated structure having a P-side electrode, and a second region including a plurality of protrusions, when viewed from an electrode forming face side; and wherein a top portion of the protrusions is closer to a level of the P-type contact layer than a level of an active layer as viewed along a cross sectional view of the semiconductor element.

Claim 5 (Original): The semiconductor device according to claim 4, wherein the second surface has a surface protrusion and

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a further recess disposed thereon, the further recess is a depression and the surface protrusion forms an outer wall of the depression.

Claim 6 (Currently amended): An optical device comprising:
a semiconductor device including

a semiconductor element;

a support member having a recess for housing the semiconductor element, the support member including lead electrodes and a support part holding the lead electrodes so that a surface of each of the lead electrodes is exposed in a bottom of the recess, the support member further having at least a first surface disposed outside of the recess and a second surface disposed outside of and offset from the first surface; and

a sealing member disposed in the recess, said sealing member having an emission surface below said first surface; and

a translucent member for allowing light to exit from the semiconductor device, or for allowing light to be received by the semiconductor device, the translucent member having a light

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entrance portion and a light emitting portion ; and

wherein the emission surface has a shape that is an
approximately symmetrical parabola with respect to the light
emitting element when viewed along the vertical axis extending
from the emission surface toward the bottom of the recess.

Claim 7 (Previously presented): An optical device
comprising:

a semiconductor device including

a semiconductor element;

a support member having a recess for housing the
semiconductor element, the support member including lead
electrodes and a support part holding the lead electrodes
so that a surface of each of the lead electrodes is exposed
in a bottom of the recess, the support member further
having at least a first surface disposed outside of the
recess and a second surface disposed outside of and offset
from the first surface, the second surface having at least
one of a protrusion and a further recess disposed thereon;
and

a sealing member disposed in the recess, said sealing

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member having an emission surface below the first surface;

and

a translucent member for allowing light to exit from the semiconductor device, or for allowing light to be received by the semiconductor device, the translucent member having a light entrance portion and a light emitting portion.

Claim 8 (Previously presented): The optical device according to claim 7, wherein the further recess is a depression and the protrusion forms an outer wall of the depression.

Claim 9 (Cancelled):

Claim 10 (Currently amended): [[A]] The semiconductor device ~~comprising:~~

~~a semiconductor element;~~

~~a support member having a recess for housing the semiconductor element, the support member including lead electrodes operatively connected by a conductive member to the semiconductor element, wherein the support member has at least a first surface disposed outside of the recess and a second~~

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~~surface disposed outside of and offset from the first surface,~~
and

according to claim 2, wherein a sub-mount substrate is
disposed in the recess, and wherein the semiconductor element is
disposed on the sub-mount substrate and a conductive paste
material is disposed between a conductive pattern formed on the
sub-mount and the lead electrodes.

Claims 11-13 (Cancelled):

Claim 14 (Previously presented): A semiconductor device
comprising:

a semiconductor element;

a support member having a recess for housing the
semiconductor element, the support member including lead
electrodes and a support part holding the lead electrodes so
that a surface of each of the lead electrodes is exposed in a
bottom of the recess; and

wherein the support member has at least a first surface
disposed outside of the recess having a sealing member therein,
the first surface having at least one of a protrusion and a

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further recess disposed thereon.

Claim 15 (Original) A semiconductor device set forth in claim 14, wherein said first surface includes the protrusion disposed on an end.

Claim 16 (Previously presented): A semiconductor device set forth in claim 14, wherein said first surface includes the further recess having a circular inner wall.

Claim 17 (Previously presented): A semiconductor device set forth in claim 14, wherein said first surface includes the protrusion having a circular outer wall.

Claim 18 (Original): A semiconductor device set forth in claim 14, further comprising a second surface adjacent to the first surface and said second surface being angularly offset from the first surface.

Claim 19 (Original): A semiconductor device set forth in claim 14, wherein said first surface includes the further recess

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angularly extending between opposed surfaces of the semiconductor device.

Claim 20 (Previously presented): The semiconductor device according to claim 2, wherein the sealing member has an emission surface having a substantially elliptical shape.

Claim 21 (Previously presented): The semiconductor device according to claim 20, wherein the emission surface has a depression that is an approximately symmetrical parabola with respect to the light emitting element when viewed along the vertical axis extending from the top surface to the bottom of the recess.

Claim 22 (Previously presented): The semiconductor device according to claim 2, wherein the sealing member further comprises at least one of:

a fluorescent material containing Al and at least one element selected from Y, Lu, Sc, La, Gd, Tb, Eu, Ga, In, and Sm; and activated with at least one element selected from the rare earth elements, and

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a fluorescent material containing N, at least one element selected from Be, Mg, Ca, Sr, Ba, and Zn; and at least one element selected from C, Si, Ge, Sn, Ti, Zr, and Hf; and activated with at least one element selected from the rare earth elements.

Claim 23 (Previously presented): The semiconductor according to claim 2, wherein the sealing member comprises a first layer including a diffusion agent and a second layer including another diffusion agent having a content different from that of the first layer.

Claim 24 (Previously presented): The semiconductor device according to claim 23, wherein the surface of the semiconductor element is covered with the first layer.

Claim 25 (Previously presented): The semiconductor device according to claim 2, wherein the sealing member has an emission surface having a shape that is an approximately symmetrical parabola with respect to the light-emitting element when viewed along the vertical axis extending from the top surface toward

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the bottom of the recess.

Claim 26 (Previously presented): The semiconductor device set forth in claim 2, wherein the further recess is a cylindrical recess and the protrusion is a circular protrusion.

Claim 27 (Previously presented): The semiconductor device set forth in claim 2, wherein said protrusion is a cylindrical protrusion.

Claim 28 (Previously presented): The semiconductor device set forth in claim 2, wherein the further recess is a cylindrical recess.

Claim 29 (Previously presented): The semiconductor device set forth in claim 2, wherein said protrusion is a protrusion extending between opposite surfaces of the support member.

Claim 30 (Previously presented): The semiconductor device set forth in claim 2, further comprising at least one of:
a fluorescent material containing Al and at least one

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element selected from Y, Lu, Sc, La, Gd, Tb, Eu, Ga, In, and Sm;
and activated with at least one element selected from the rare
earth elements, and

a fluorescent material containing N, at least one element
selected from Be, Mg, Ca, Sr, Ba, and Zn; and at least one
element selected from C, Si, Ge, Sn, Ti, Zr, and Hf; and
activated with at least one element selected from the rare earth
elements.

Claim 31 (Previously presented): The semiconductor device
set forth in claim 2, wherein said semiconductor element further
comprises at least one of:

a fluorescent material containing Al and at least one
element selected from Y, Lu, Sc, La, Gd, Tb, Eu, Ga, In, and Sm;
and activated with at least one element selected from the rare
earth elements, and

a fluorescent material containing N, at least one element
selected from Be, Mg, Ca, Sr, Ba, and Zn; and at least one
element selected from C, Si, Ge, Sn, Ti, Zr, and Hf; and
activated with at least one element selected from the rare earth
elements.

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Claim 32 (Cancelled):

Claim 33 (Previously presented): The optical device set forth in claim 6, wherein the emission surface is so configured that a gap is formed between the emission surface and the light entrance portion.

Claim 34 (Previously presented): The optical device set forth in claim 7, wherein said emission surface has a shape that is an approximately symmetrical parabola with respect to the light emitting element when viewed along the vertical axis extending from the top surface to the bottom of the recess.

Claim 35 (Previously presented): The optical device set forth in claim 7, wherein the emission surface is so configured that a gap is formed between the emission surface and the light entrance portion.

Claim 36 (Previously presented): The semiconductor device set forth in claim 14, wherein the further recess is a circular

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recess.

Claim 37 (Previously presented): The semiconductor device set forth in claim 14, wherein the protrusion is a circular protrusion.

Claim 38 (Previously presented): A semiconductor device comprising:

a semiconductor element;

a support member having a recess for housing the semiconductor element, the support member including lead electrodes and a support part holding the lead electrodes so that a surface of each of the lead electrodes is exposed in a bottom of the recess;

wherein the support member has at least a first surface disposed outside of the recess having a sealing member therein and a second surface extending outwardly from the first surface, and

wherein the second surface is angularly offset from the first surface less than 90 degrees.